310 as the second clock signal. In a preferred embodiment, a clock edge is used to turn off switches within the front-end circuit 310, and a fixed delay from the clock edge is used to turn on switches within the front-end circuit 310. In a preferred embodiment, the signals are non-overlapping signals with a fixed duty cycle.

Referring to FIGS. 51 and 52, a system 5100 for simulating the output of the sensor 205 will now be described. In a preferred embodiment, the system 5100 includes the sensor 205, the controller 206, the sensor simulator 330, and a switch 5105 for controllably connecting the sensor 205 to the controller 206 or the sensor simulator 330.

The sensor 205 preferably converts a physical quantity of interest into an electrical quantity. The physical quantity of interest may include any physical quantity such as, for example, acceleration, pressure, or temperature. In a preferred embodiment, the physical quantity of interest is acceleration. The electrical quantity into which the physical quantity of interest is converted may be any electrical quantity such as, for example, resistance, capacitance, charge, voltage, or current. In a preferred embodiment, the electrical quantity is capacitance.

In a preferred embodiment, the sensor 205 is coupled to the controller 206 during normal operation. The sensor 205 may include any combination of non-electrical devices, integrated circuit and discrete circuit components. The sensor 205 may include any number of conventional commercially available transducers suitable for converting physical data into an electrical quantity such as, for example, integrated pressure sensors or integrated temperature sensors. In a preferred embodiment, the sensor 205 is a micromachined accelerometer with capacitive position sensing and electrostatic feedback forcing, the design of which is provided substantially as described in one or more of the following: United States Patent number 5,852,242, ~~and in United States patent application serial number _____, attorney docket number 14737.737, filed on _____~~, the disclosures of which are incorporated herein by reference.

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